

Fanshawe College

## FIRST: Fanshawe Innovation, Research, Scholarship, Teaching

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Documentation (Approvals etc...)

Network and Security Architecture

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2016

### NSA1 Curriculum Modification for 2017-18

Fanshawe College

Follow this and additional works at: [https://first.fanshawec.ca/cae\\_infotech\\_networksecurityarchitecture\\_documentation](https://first.fanshawec.ca/cae_infotech_networksecurityarchitecture_documentation)

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\*Needs new course codes \*

# CURRICULUM MODIFICATION REQUEST FORM

## COURSE OR PROGRAM CURRICULUM "RATIONALE FOR CHANGE"

### Program Requiring Changes

Program Title: Network and Security Architecture		
Program Number: NSA1	Date Submitted: 11/17/2016	
Dean responsible for program: David Belford	Chair: Jim Edwards	
Credential Provided: <input type="checkbox"/> Declaration of Academic Achievement <input type="checkbox"/> Local Certificate <input type="checkbox"/> Ontario College Certificate <input type="checkbox"/> Diploma <input type="checkbox"/> Advanced Diploma <input checked="" type="checkbox"/> Grad Certificate <input type="checkbox"/> Degree <input type="checkbox"/> Apprenticeship		
Program Intakes: <input checked="" type="checkbox"/> F <input checked="" type="checkbox"/> W <input type="checkbox"/> S   Other:	Catalogue Year(s) Impacted: 2017/2018	
Residency Requirement: <input checked="" type="checkbox"/> Met or <input type="checkbox"/> Not Met	Date of Last Program Review: <a href="#">Click here to enter a date.</a>	
<i>I have read the reasons for the change and...</i>		<i>Signature and date</i>
Dean of Faculty (responsible for program):	<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Do Not Approve	<i>David Belford Nov. 30/16</i>
Dean of Faculty (impacted by change):	<input type="checkbox"/> Approve <input type="checkbox"/> Do Not Approve	
Dean of Faculty (impacted by change):	<input type="checkbox"/> Approve <input type="checkbox"/> Do Not Approve	
Senior Vice President Academic (required for major changes and late DAs):	<input type="checkbox"/> Approve <input type="checkbox"/> Do Not Approve	
Director, Centre for Academic Excellence:	<input checked="" type="checkbox"/> Supports <input type="checkbox"/> Does Not Support	<i>Judy Geddes Dec 19/16</i>
Office of the Registrar:	<input checked="" type="checkbox"/> Supports <input type="checkbox"/> Does Not Support	<i>A. Harwood Dec 9/16</i>

*Please answer each of the questions below, if applicable. Missing or incomplete information may delay review of the proposed changes.*

1.0 Describe proposed change(s). Complete Appendix A (if necessary) and amend SDAR (Refer to Appendix C).

- 1) Info 6034 (routers and switches) will to be replaced with a new course, **Securing Networks** as there is currently no alignment with 6035 (firewalls – 1<sup>st</sup> semester) and the second semester courses 6038 (VPN's), 6039 (IPS) and 6040 (wireless) neither have the appropriate foundation or are aligned with this course. Info 6XXX **Securing Networks**: New description: *This course will study the theory and procedures required to secure a network from the edge inward. This will provide the students with the skillset to enhance network security to meet consistently changing requirements.*
- 2) Info 6035 (firewalls) works as a stand-alone course hence it is proposed to rename the course to **Securing the Edge 1** and reorder the content to bring it into alignment with the new Securing Networks course and add a small amount of content on network security policies. Info 6XXX **Securing the Edge 1**: New description: *This course will study the theory and procedures required to secure the edge of a network from potential internal and external threats. The course will provide the students with the skillset to configure and enhance network security to meet consistently changing requirements.*
- 3) Info 6037 (Network Protocols) the current course is very basic and I believe would work well as an undergraduate course but is not sufficiently challenging for a post graduate. It is proposed that it be replaced with it with Info 6XXX **Network Management**. New description: *In today's technology driven environment end users just want to get work done and networking is an integral part of that effort. This course focuses on managing networks and the network protocols that enable them to function and how they are used to transmit data between senders and receivers.*
- 4) Info 6039 (IPS) the current course mainly deals with stand-alone IPS, it does not touch IDS and needs to be more of a progression from the first semester courses. Hence it proposed that it be replaced but retaining relevant portions of the current content with a new course. Info 6XXX **Securing the Edge 2**: New description: *This course will explore the principles of Intrusion Detection (IDS) and Intrusion Detection Prevention Systems (IPS) their implementation and configuration. It will build on the material studied in **Securing the Edge 1** by delivering the technical knowledge, insight, and hands-on training needed to defend a network against intrusion.*
- 5) ACAD 6002 Graduate Success Strategies will be introduced across the graduate certificates to ensure that students are appropriately prepared to meet the writing, presentation and referencing requirements demanded by Fanshawe courses.



## 2.0 Reason/Rationale for Changes

2.1 The reason for the change is based on:

- ☐ A recent program review
- ☐ College Advisory Committee feedback
- ☐ Program Advisory Committee feedback
- ☒ Student feedback
- ☐ KPI results
- ☐ Accreditation or other regulatory requirements
- ☐ Shared curriculum
- ☒ Trends in the field/industry
- ☒ Other (please describe):

Strategies for success - students need more guidance in connection with study habits, attendance, academic integrity, writing and presentations.

2.2 Does the change support the College's Strategic Framework (mission, vision, values)?

- ☒ Yes
- ☐ No (If no, please explain)

2.3 What strategic goal(s) does the proposed change support?

- ☒ Goal 1 - Enrolment growth
- ☐ Goal 2 - Flexible delivery options
- ☒ Goal 3 - Premier student experience
- ☒ Goal 4 - Sustainable College life

## 3.0 Students

3.1 Will the change affect the cost of the program for students?

- ☒ Yes
- ☒ No

3.2 If yes, there will be an additional cost for:

- ☐ Materials (Include details):
- ☐ Equipment (Include details):
- ☒ Other (Please describe): In actual fact the cost may decrease as a less powerful laptop will be required to take the programme.

## 4.0 Program Learning Outcomes

4.1 Will the proposed change meet the Program Vocational Learning Outcomes? (Complete Appendix B)

- ☒ Yes

☐ No

4.2 Are there any implications related to progression because of pre-requisite courses (and/or co-requisite courses)?

☒ No

☐ Yes (If yes, please explain)

## 5.0 Relationships with Other Programs

5.1 Are any of the courses impacted by the change provided by another School (e.g., SLLS, LKSB) and/or delivered at another campus?

☒ No

☐ Yes

5.2 What Schools/Campuses will be impacted by the proposed change?

- ☒ School of Information Technology
- ☐ Lawrence Kinlin School of Business
- ☐ School of Tourism and Hospitality
- ☐ School of Health Sciences
- ☐ School of Human Services
- ☐ School of Nursing
- ☐ School of Public Safety
- ☐ School of Contemporary Media
- ☐ School of Design
- ☐ School of Language and Liberal Studies
- ☐ School of Aviation Technology
- ☐ School of Applied Sciences and Technology
- ☐ Donald J. Smith School of Building Technology
- ☐ School of Transportation Technology
- ☐ Continuing Education
- ☐ Simcoe/Norfolk Regional Campus
- ☐ Woodstock/Oxford Regional Campus
- ☐ St Thomas/Elgin Regional Campus

5.3 Will the change affect pathway agreements (e.g., bridging, articulations, laddering, advanced standing) with other Fanshawe program(s) and/or other institution(s)?  
(Refer to the pathway agreements listed here: <http://transferagreements.fanshawec.ca/>)

☒ No

☐ Yes (If yes, indicate when you will notify the other Fanshawe program(s) and/or other institution(s) of the change)

5.4 If this program is a Co-Operative Education program, will the proposed change impact Co-op?

☒ No

☐ Yes (If yes, consult with the Co-op office prior to submission)

## 6.0 Resource Implications of Proposed Changes

6.1 Will the proposed change have staffing implications?

☐ No

☒ Yes (If yes, please explain) contact hours increased by one (they had previously been reduced by one when Info 6040 was reduced to 3.00).

6.2 Will the proposed change impact any of the Enabling areas?

☒ No

☐ Yes (If yes, please explain)

6.3 Will the proposed change affect space and/or technology requirements?

☒ No

☐ Yes (If yes, please explain)

## 7.0 General College Requirements

7.1 Are changes consistent with Colleges policies/practices?

☒ Yes

☐ No (If no, please explain)

7.2 Indicate:

- i) Total program hours before proposed change: \_\_\_\_\_ 660 \_\_\_\_\_  
ii) Total program hours after proposed change: \_\_\_\_\_ 674 \_\_\_\_\_  
iii) Level(s) in which the proposed change(s) occurs: \_\_\_\_\_ 1 & 2 \_\_\_\_\_

7.2.1 Are the total program hours consistent with the requirements as listed below?

☒ Yes

☐ No (If no, please explain)

<b>Local Certificate</b> - 300 hours	<b>Ontario College Certificate</b> - 600 hours
<b>Diploma</b> - 1200 to 1400 hours	<b>Advanced Diploma</b> - 1800 to 2000 hours
<b>Graduate Certificate</b> - 600 hours	

7.3 Will the program meet the General Education requirements (Policy 2-B-02) as listed below?

☐ No

☒ Yes

<b>Local Certificate, Ontario College Certificate and Graduate Certificate</b> - none required)	<b>Diploma</b> - 3 required (minimum of 1 must be an elective)	<b>Advanced Diploma</b> - 4 required (minimum of 2 must be electives)
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- 7.4 Will the program have 25% distinct curriculum to meet the Residency Requirement of 25% credit units? Consider all pathway agreements (e.g., bridging, internal articulations, laddering, advanced standing) with other Fanshawe programs and/or other institutions.

- ☐ No  
☒ Yes

**Note:** In accordance with POLICY NUMBER: 2-B-17 Graduation from Approved College Programs

...to be eligible for any College Credential a student must be enrolled and complete at least 25% of that program's credit units at Fanshawe College, unless stipulated differently by other approving bodies such as the Postsecondary Education Quality Assessment Board (PEQAB).



## Degree Audit Report

2017/2018  
Catalog: 2016/2017

Program: NSA1  
 Department: ITY - Information Technology  
 Academic Level: PS  
 CCD: 7 - 2AcadSem/600-700 hrs

Name: Network and Security Architecture

Grade Scheme: LG2  
 Major: NSA1 - Network & Security Arch.  
 Co-Op Indicator: N/A

Div: ITY - Information Technology Division

## Academic Program Requirement

Total Credits: 45.00  
 GPA Requirement: 2.000  
 Minimum Grade: D

Residency Reqmt: 12.00  
 Residency Reqmt GPA: 2.000

## Academic Requirement: NSA1.16 Network and Security Architecture

Major: NSA1  
 Grade Scheme: LG2  
 Minimum GPA: 2.00000  
 Minimum Grade:

## Subrequirement: Level 1

Take all of the following Mandatory Courses:

	INFO	SECURING NETWORKS	60.00	4.00	Total Hours	Total Credits	GE
	<del>INFO-6034</del>	<del>Securing Routers &amp; Switches</del>	<del>60.00</del>	<del>4.00</del>			REPLACE
INFO	<del>INFO-6035</del>	<del>Firewalls</del>	<del>60.00</del>	<del>4.00</del>			REPLACE
	INFO-6036	Server Infrastructure	75.00	5.00			
INFO	<del>INFO-6037</del>	<del>Network Protocols</del>	<del>45.00</del>	<del>3.00</del>			REPLACE
	INFO-6042	Web Security	45.00	3.00			
	INFO-6043	IT Service Management	45.00	3.00			
	ACAD-6002	GRADUATE SUCCESS STRATEGIES	14.00	1.00			

## Subrequirement: Level 2

Take all of the following Mandatory Courses:

	INFO		Total Hours	Total Credits	GE
	INFO-6038	Virtual Private Networks	60.00	4.00	
	<del>INFO-6039</del>	<del>Intrusion Prevention Systems</del>	<del>60.00</del>	<del>4.00</del>	REPLACE
	INFO-6040	Wireless Networks	45.00	3.00	
	INFO-6041	Virtualization Infrastructure	75.00	5.00	
	INFO-6010	CISSP Prep	45.00	3.00	
	INFO-6033	Enterprise Network Design	60.00	4.00	

## Subrequirement: Program Residency

Students Must Complete a Minimum of 12 credits in this program at Fanshawe College to meet the Program Residency requirement and graduate from this program

Approved By Chair/Manager:

Approved by Dean:

Department and Date:

Date:

General Education Approved By(as appropriate):

Date:



APPENDIX A: PROPOSED CURRICULUM MODIFICATION - NSA1

Course Code	Existing DA Courses	Total Hours	Total Credits	Describe proposed changes	Course Code	Proposed DA Courses	Total Hours	Total Credits
Level 1								
INFO-6034	Securing Routers & Switches	60	4	New course	INFO-6034	Securing Networks	60	4
INFO-6035	Firewalls	60	4	New name and small addition to the content.	INFO-6035	Securing the Edge 1	60	4
INFO-6036	Server Infrastructure	75	5		INFO-6036	Server Infrastructure	75	5
INFO-6037	Network Protocols	45	3	New course	INFO-6037	Network Management	45	3
INFO-6042	Web Security	45	3		INFO-6042	Web Security	45	3
INFO-6043	IT Service Management	45	3		INFO-6043	IT Service Management	45	3
				New course	ACAD 6002	Graduate Success Strategies	14	1
TOTAL		330	22	TOTAL			344	23
Level 2								
INFO-6010	CISSP Prep	45	3		INFO-6010	CISSP Prep	45	3
INFO-6033	Enterprise Network Design	45	3		INFO-6033	Enterprise Network Design	45	3
INFO-6038	Virtual Private Networks	60	4		INFO-6038	Virtual Private Networks	60	4
INFO-6039	Intrusion Prevention Systems	60	4	New course	INFO-6039	Securing the Edge 2	60	4
INFO-6040	Wireless Networks	45	3		INFO-6040	Wireless Networks	45	3
INFO-6041	Virtualization Infrastructure	75	5		INFO-6041	Virtualization Infrastructure	75	5
TOTAL		330	22	TOTAL			330	22
PROGRAM TOTAL		660	44	PROGRAM TOTAL			674	45

APPENDIX A – Form 3 Program Outcomes – Curriculum Map

PROGRAM MAPPING (Network and Security Architecture)									LEVEL TWO							
PROGRAM VOCATIONAL LEARNING																
	SRTY 6002 Securing Networks	SRTY 6003 Securing the Edge 1	INFO6036 Server Infrastructure	INFO 6070 Network Management	INFO 6043 IT Service Management	INFO 6042 Web Security	ACAD 6002 Graduate Success Strategies	INFO 6038 Virtual Private Networks	SRTY 6004 Securing the Edge 2	INFO 6040 Wireless Networks	INFO 6041 Virtualization	INFO6010 CISSP Prep	INFO 6033 - Enterprise Network Design	# OF COURSES EVALUATING THE OUTCOME		
1 - Introductory																
2 - Intermediate																
3 - Advanced																
The graduate has reliably demonstrated the ability to: (Source: MTCU Code )																
1 Apply knowledge of networking and routing protocols to design an enterprise network	3	3	3	3	3			3	3	3		3	3	10		
2 Perform network monitoring, analysis and troubleshooting to determine the efficient and secure operation of the network.	3	3		3		3			3				3	6		
3 Develop a security architecture plan to incorporate both perimeter and endpoint security controls and devices to provide layers of security for a defense in depth strategy.	3	3		3	3			3	3	3		3	3	9		
4 Design a Windows operating system infrastructure, accommodating a multi-site enterprise topology. Implement and deploy security effectively through organizational unit and security group design.			3		3						3		3	3		
5 Design a centrally managed wireless network topology that can accommodate remote sites. Incorporating the current security standards.				3						3			3	2		
6 Design and implement a virtualization and cloud computing focused infrastructure. Specifically addressing the security concerns associated with incorporating virtualization into an organizations infrastructure.			3					3			3		3	3		
7 Deploy servers to host web applications, focusing on securing the server and web applications from identified security risks.			3	3		3								3		
8 Identify and plan IT services that support business goals and objectives. Explain specific activities directly related to the delivery and support of the services					3		1				3	3	3	5		
Communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets business requirements.	1	1	1	1	2	1	1	1	1	1	1	1	2	13		
TOTAL # OF OUTCOMES EVALUATED BY EACH COURSE	4	4	5	6	5	3	2	4	4	4	4	4	8			
GM = General Education (mandatory) G = General Education (elective)																

NB - Only indicate the outcomes that are Taught & Evaluated (TE or TRE) in a course

PROGRAM COORDINATOR: Clive Wright	Additional Comments:
ACADEMIC CHAIR: Jim Edwards	
Date Completed: November 2016	

## Degree Audit Report

Catalog: 2016/2017

Program: NSA1

Department: ITY - Information Technology

Name: Network and Security Architecture

Academic Level: PS

CCD: 7 - 2AcadSem/600-700 hrs

Grade Scheme: LG2

Major: NSA1 - Network &amp; Security Arch.

Div: ITY - Information Technology Division

Co-Op Indicator: N/A

## Academic Program Requirement

Total Credits: 45.00

Residency Reqmt: 12.00

GPA Requirement: 2.000

Residency Reqmt GPA: 2.000

Minimum Grade: D

## Academic Requirement: NSA1.16 Network and Security Architecture

Major: NSA1

Grade Scheme: LG2

Minimum GPA: 2.00000

Minimum Grade:

## Subrequirement: Level 1

Take all of the following Mandatory Courses:

			Total Hours	Total Credits	GE
<i>SRTY-6002</i>	<i>SECURING NETWORKS</i>				
<i>INFO-6034</i>	<i>Securing Routers &amp; Switches</i>		60.00	4.00	REPLACE
<i>SRTY-6003</i>	<i>Firewalls</i>	<i>SECURING THE EDGE 1</i>	60.00	4.00	REPLACE
<i>INFO-6036</i>	<i>Server Infrastructure</i>		75.00	5.00	
<i>INFO-6037</i>	<i>Network Protocols</i>	<i>NETWORK MANAGEMENT</i>	45.00	3.00	REPLACE
<i>INFO-6042</i>	<i>Web Security</i>		45.00	3.00	
<i>INFO-6043</i>	<i>IT Service Management</i>		45.00	3.00	
<i>ACHD-6002</i>	<i>Cloudware Success Strategies</i>		15.00	1.00	

## Subrequirement: Level 2

Take all of the following Mandatory Courses:

			Total Hours	Total Credits	GE
<i>SRTY-6004</i>	<i>Virtual Private Networks</i>		60.00	4.00	
<i>INFO-6039</i>	<i>Intrusion Prevention Systems</i>	<i>SECURING THE EDGE 2</i>	60.00	4.00	REPLACE
<i>INFO-6040</i>	<i>Wireless Networks</i>		45.00	3.00	
<i>INFO-6041</i>	<i>Virtualization Infrastructure</i>		75.00	5.00	
<i>INFO-6010</i>	<i>CISSP Prep</i>		45.00	3.00	
<i>INFO-6033</i>	<i>Enterprise Network Design</i>		60.00	4.00	

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Approved by Dean:

Department and Date:

Date:

General Education Approved By (as appropriate):

Date: